Critical Thinking Disposition of Elementary School Teacher Education Students During and After The Covid-19 Pandemic

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Abstract. The aim of this research is to describe the critical thinking disposition of Elementary School Teacher Education students at State University of Malang who use online learning (during Covid-19) and offline learning (post-Covid-19). The research objectives in detail are 1) to describe the critical thinking disposition of Elementary School Teacher Education students between students during Covid-19 to post Covid-19, 2) to describe differences in critical thinking dispositions based on gender 3) to describe differences in critical thinking dispositions based on regional origin. Critical thinking disposition was measured using the standard California Critical Thinking Disposition Inventory (CCTDI) instrument. The research method is descriptive quantitative. Data analysis was carried out using Independent Sample T-Tests and Analysis of Variant (ANOVA) tests. The research population was elementary school teacher education students during the Covid 19 pandemic and post-pandemic 19. The research sample was 184 students who were chosen randomly The research results show that the total score of the group during the Covid-19 Pandemic was in the positive category, while the post-Covid-19 Pandemic group was in the strong category. The same category occurs in the post test score results with no change in category in disposition The post test total score shows that there is a statistically significant difference between the post-Covid-19 Pandemic group and the group during the Covid-19 Pandemic. There was a change in category from pre-test to post-test in the Covid-19 Pandemic period group, from weak to strong category with only a change of 2.98 points. With a significance level of $\dot{\rho}<0.05$, the critical thinking disposition score of the post-Covid-19 Pandemic group was significantly higher than the group during the Covid-19 Pandemic. The subscales are in order from highest to lowest total score and scores for Inquisitiveness, Maturity of Judgment, Confidence in Reasoning, Truthseeking, Analytical, Open-mindedness, except for Systematical which was actually higher in the group during the Covid-19 Pandemic. Changes in CCTDI pre-test to post-test scores in men in the post-Covid-19 Pandemic group were higher in Truthseeking and Maturity of Judgment from Ambiguous to positive, and Inquisitiveness from Ambiguous to strong positive. The independent samples t-test showed that there was a statistically significant difference between the group of men after the Covid-19 Pandemic compared to the group during the Covid-19 Pandemic in the total score and the scores for Inquisitiveness, Analytical, Confidence in Reasoning, Maturity of Judgment except for the Truth-seeking, Open-mindedness, and Systematic subscales at the significance level $\dot{\rho} < 0.05$. The results of the significance test in the post test show that there are significant differences between students from the post Covid 19 Pandemic group and those

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C. D. M. Putri et al. (eds.), *Proceedings of the International Joint Conference on Arts and Humanities 2024 (IJCAH 2024)*, Advances in Social Science, Education and Humanities Research 879,
https://doi.org/10.2991/978-2-38476-317-7_215

from the Covid-19 Pandemic period who came from rurals and cities, except for the systematic sub-scale. Rural students started with a score in the Ambiguous category on the pre-test, which was maintained on the post-test, while urban students started with a score in the positive category on the pre-test, which was maintained on the post-test. Rural students in the group during the Covid-19 Pandemic did not show changes in categories on all subscales, whereas in the post-Covid-19 Pandemic group only changes on the Maturity of Judgment subscale from Ambiguous to positive.

Keywords: Critical Thinking Disposition, Elementary School Teacher Education Students, CCTDI.

1 Introduction

Critical thinking helps students face various challenges they will face in their lives and careers [1][2]. Critical thinking is recognized as an important educational goal [1][2] [3]. In fact, all disciplines and levels of education need to prepare individuals to think well [4][5]. Research consistently shows that strengths in critical thinking correlate with workplace and academic success, professional certification and licensure, and survival of life's most difficult challenges [6]. Weak critical thinking results in "failure in learning, chaotic and confusing communication, loss of jobs, loss of opportunities, financial resources, relationships, and even loss of life, ineffective law enforcement, gullible voters, prison sentences, prejudice, higher combat casualties, the rise and fall of pawnshops, thoughtless criticism, financial mismanagement, domestic violence, suicide attempts, drug addiction, ……" [6]. Even though the curriculum has changed frequently, the results of world assessments show that students' thinking abilities are still weak and the condition of education is still worrying. The 2022 PISA (Program for International Student Assessment) results show that Indonesia is ranked 69th among 80 participating countries with a score of 369, which is far from Singapore's score which is ranked 1st with a score of 560. Even worse, all assessments in the field of reading, mathematics and science scores decreased compared to the previous PISA results. [7]

Research has been conducted on critical thinking dispositions. Based on a four-year longitudinal study of 147 Catholic university students in the United States, Giancarlo and Facione [8] found a statistically significant increase in the mean total score and critical thinking disposition subcategories of the CCTDI on the Truthseeking, and Confidence in Reasoning subscales. This research also shows that a large number of students (75%) with a positive disposition (score 40 and above) or ambivalent (score below 30) on Inquisitiveness, Open-mindedness, and Maturity of Judgment.

This research is directed at the critical thinking habits of elementary school teacher education students who will later teach critical thinking habits at the elementary school level. In general, the aim of this research is to find out the critical thinking disposition of Elementary School Teacher Education students at State University of Malang who use online learning (during Covid-19) and offline learning (post-Covid-19). The main problem is detailed into research sub-problems: What is the critical thinking disposition of Elementary School Teacher Education students between students during Covid-19 to post Covid-19, differences in critical thinking disposition based on gender and

regional origin. This research is limited to Elementary School Teacher Education students at State University of Malang during and after the Covid-19 pandemic between 2020 and 2024.

The operational definitions of variables are presented in the following. 1) Elementary School Teacher Education students during the Covid-19 pandemic and post-pandemic 19 are Elementary School Teacher Education students studying in the even semester 2019-2021 who use online learning and students from the 2022 to odd semester 2024 who use offline learning. 2) The gender variable refers to the biological characteristics of men and women. 3) The regional origin variable refers to territory, namely cities and rurals. Urban boundaries are marked by a territorial distance of between 0 kilometers and 15 kilometers from the urban center (urban square) and the origin of students who are more than 15 kilometers from the urban center are said to be students from the rural.

Critical thinking disposition is the habitual tendency of the mind to seek the truth, be analytical, open-minded, systematic, believe in reasoning, be curious, and be mature in using critical thinking when solving problems. This critical thinking disposition was measured using the standard California Critical Thinking Disposition Inventory (CCTDI) instrument.

In an article entitled “How We Think”, John Dewey [10] prefers dispositions or habits over critical thinking skills. In research, there is no absolute agreement about the meaning of critical thinking, but there has been a consensus that critical thinking consists of skills and dispositions [11][12][13]. Disposition is a motivational dimension [7][14][15]. Dispositions can also be called characters or habits (traits) or patterns of thinking, and dispositions are used to describe the tendency to use critical thinking.

Someone who thinks critically must be willing and able to think critically in making decisions. Before the CCTDI existed to measure thinking habits of mind, many people assumed that the strength of critical thinking dispositions was highly correlated with the strength of critical thinking skills. However, there is no research evidence to support it. Some individuals tend (want to) solve problems using critical thinking and are skilled (able) to do so. Other individuals are skilled at higher level thinking but fail to face problems (because they don't want to), and there are still other individuals who support the importance of the value of good thinking but do not have (or try to have) strong critical thinking skills. A person has critical thinking skills but does not only use them in certain circumstances [16]. Just knowing about healthy living, individuals do not always choose to act according to what they know (have not yet formed healthy lifestyle habits).

The Delphi study of the American Philosophical [17] found a critical thinking disposition which is a pattern of thinking (a mode of thinking). This research uses the CCTDI according to Insight Assessment 2016. Each scale score describes one aspect of critical thinking disposition in forming judgments about what to believe or what to do. People may be positively, ambivalently, or negatively disposed toward each of the seven overall dispositional aspects of critical thinking. CCTDI is a tool for measuring the dimensions of "willingness" to think critically in the general adult population at all levels in junior high school students, the general public, university students and professionals which is used in more than 40 countries throughout the world.

Pascarella's [15] research shows majors have an impact on the development of critical thinking dispositions. Walsh [18] using the CCTDI showed evidence that there

were statistically significant differences among English, psychology, business, and nursing majors on overall scores as well as subscale scores of Truth Seeking, Open-mindedness, Confidence in Reasoning, Inquisitiveness, and Maturity of Judgment.

Belenky, Clinchy, Goldberger, and Tarule [19], through a qualitative study, showed that women use connected knowing more than men who tend to separate knowing in the position of "procedural knowledge." Connected knowing is characterized as empathic and understanding, while separate knowing is characterized as objective and impersonal. Case and Daniel [20] conclude that masculine thinking is "confrontational, argumentative, detached, and unemotional" while feminine thinking tends to be "consensual, supportive, contextual, and caring". Erickson and Strommer [21] state that as separate knowers, men are more likely to "respond to freedom from authority with vigor, proclaiming their rights to their own opinions, and later justifying them with reason and evidence". Women tend to be less assertive, base their own opinions more than objective evidence, retract views that if expressed might harm relationships, and listen rather than actively participate in class discussions. A study by Rudd, Baker, and Hoover (2000) actually found that women scored higher than men in critical thinking disposition, women's total CCTDI scores were significantly higher than men's as well as in three subscales of the measuring instrument: Truth Seeking, Open-mindedness, and Maturity of Judgment. Giancarlo and Facione [7] found similar results in a pre-test post-test longitudinal study, which described critical thinking disposition groups. Using CCTDI, there are statistical differences between female and male subjects. Women scored higher overall, as well as on two measuring scales, namely Open-mindedness and Maturity of Judgment.

The differences between men's and women's thinking can be found in Baxter-Magolda's Epistemological Reflection Model. This model has four stages: absolute knowing, transitional knowing, independent knowing, and contextual knowing. absolute knowing. The Baxter-Magolda model found that there are differences between men and women in the way they think. Men follow a pattern of "mastering knowledge," while women follow a pattern of "receiving knowledge." Baxter-Magolda [7] found men follow an "impersonal pattern," and women follow an "interpersonal pattern,"

Carol Gilligan points out that in the theory of stages of moral development, men's point of view regarding individual rights and rules is seen as a higher stage than women's point of view which tends to be concerned with human relations [23]. Gilligan's goal was to prove that women were not "moral midgets" in opposition to psychological opinion. Freud had the idea that women's moral sense was stunted because they were close to their mothers. Erik Erickson believes there is a developmental task to escape from one's mother and family. If a woman does not succeed in this stage, then she is truly lacking.

Ennis [23] discusses the "typically male characteristics" of critical thinking, asserting, "traditional concepts of critical thinking ignore women's ways of knowing", namely, emotion, attention to context, the relationship between self and object, and attention to personal voice. The traditional (male) concept of critical thinking is characterized by objective, rational, and decision-based.

Ferdinand Tonnies created a dichotomy between Gemeinschaft society and Gesellschaft society. For Tonnies, Gemeinschaft (community) reflects natural will and exhibits a social structure characterized by organic unity, strong traditions, holistic relationships and displays of spontaneity in behavior. The characteristics of

Gemeinschaft in this research are identified with rurals. On the other hand, Gesellschaft (society) society is characterized by a rational will, which is more planned, and prioritizes social relations based on certain specializations. Gesellschaft (society) in research is identified with the urban. In line with this thought, Montesquieu stated the importance of social context because society has a developmental logic within it [25].

This research was conducted in the Elementary School Teacher Education study program at State University of Malang. The research population was elementary school teacher education students during the Covid-19 pandemic and post-pandemic 19 who studied in 2020 (starting from the even semester of 2019) who used online learning and students from the class of 2022 to the odd semester of 2024 who used offline learning. The research sample was 184 students selected randomly. This research is quantitative descriptive research.

The research instrument for measuring critical thinking disposition is the California Critical Thinking Disposition Inventory (CCTDI). This research design involved two groups of students at the State University of Malang who used randomly selected offline learning and online classes. CCTDI validity testing is content validity and "face validity" which has been carried out by Insight Assessment (the name of the assessment institution in California). The Marlowe-Crowne Social Desirability Scale results showed that no significant association was observed between the CCTDI scale scores and the Marlowe-Crowne scores. This means that the CCTDI instrument makes test takers answer honestly rather than prioritizing the desired answer.

Internal consistency reliability with test-retest on each of the seven scales with Alpha yielded a CCTDI coefficient that exceeded 0.80 when the two administration times were given two weeks after the first time (minimum Alpha 0.80 for the disposition measuring tool). The CCTDI, which takes 30 minutes to complete, does not contain critical thinking technical vocabulary and is assumed to contain no college level material. The 75 items encourage test takers to “express familiar opinions, beliefs, values, expectations, and perceptions” using a six-point Likert scale ranging from “strongly agree” to “strongly disagree” [7]. To interpret scores, Insight Assessment provides a Summary Analysis of Interpretation of CCTDI Scores. If the CCTDI numerical score of 10 – 19 is in the strong negative qualitative category; Score 20 – 29 negative category; Score 30 – 39 Inconsistent/ambivalent; Score 40 – 49 positive category; and Score 50 or above Strong Positive.

2 Method

The research method is descriptive quantitative. Students are asked to fill out the CCTDI inventory at the beginning of the lecture and at the end of the lecture. Data analysis to answer research questions was carried out using Independent Sample T-Tests to test two groups and Analysis of Variance (ANOVA) tests for more than two samples (for example, the gender variable which divides test participants into four: men in the online group, women in the online group , women in the offline group and men in the offline group. For data processing and analysis, IBM SPSS 21 and Excel 2016 were used.

3 Result and Discussion

The demographics of the research participants were 184 Elementary School Teacher Education students at the State University of Malang, odd semester 2019 academic year to odd semester 2024 academic year. Of this number, they were separated according to the variables studied as follows: a) Ninety-two (50%) from the online group (COVID-19 Pandemic period) and 92 (50%) of the offline group after the Covid-19 Pandemic were used to compare the effects of online and offline learning on critical thinking dispositions; 2) Sixty eight (37%) of the female Covid-19 Pandemic period group and 24 (13%) of the male Covid-19 Pandemic period group compared to 79 (43%) of the female post Covid-19 Pandemic group and 13 (7%) the male post-Covid-19 Pandemic group was used to compare the effects of gender variables on critical thinking disposition; 3) Fifty-four (29%) of the online group (Covid-19 Pandemic period) came from rurals and 38 (21%) of the Covid-19 Pandemic group came from cities compared to 60 (33%) of the post-Pandemic group Covid-19 originating from rurals and 32 (17%) post-pandemic Covid-19 groups originating from cities were used to compare the effect of regional origin variables on changes in critical thinking disposition scores.

The total score test results show that the group during the Covid-19 Pandemic that used online learning was in the positive category, while the post-Covid-19 Pandemic group that used offline learning was in the strong category. The same category occurs in the post test score results with no change in category in disposition.

Table 1. Differences in CCTDI Pre-Post Test Scores Between Groups in the Form of Raw Mean Scores and Standard Mean Scores Based on Score Interpretation Analysis According to Insight Assessment.

RAW SCORES	THE COVID-19 PANDEMIC PERIOD			POST COVID-19 PANDEMIC		
Category	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	276.7	279.68	2.98	281.05	309.08	28.03
Truthseeking	33.84	35.50	1.66	32.52	38.37	5.85
	Ambiguous	Ambiguous	Nothing	Ambiguous	Ambiguous	Nothing
Open-mindedness	34.27	35.28	1.01	35.73	38.75	3.02
	Ambiguous	Ambiguous	Nothing	Ambiguous	Ambiguous	Nothing
Inquisitiveness	39.34	38.48	-0.86	40.22	49.35	9.13
	Ambiguous	Ambiguous	Nothing	Positive	Positive	Nothing
Analytical	46.35	46.58	0.23	46.57	49.10	2.53
	Positive	Positive	Nothing	Positive	Positive	Nothing
Systematical	41.29	41.48	0.18	42.82	41.65	-1.16
	Positive	Positive	Nothing	Positive	Positive	Nothing

Confidence in Reasoning	42.37	42.83	0.46	43.65	48.27	4.62
	Positive	Positive	Nothing	Positive	Positive	Nothing
Maturity of Judgment	39.24	39.54	0.30	39.55	43.66	4.11
	Positive	Positive	Nothing	Positive	Positive	Nothing
Raw Mean Score	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	-0.21	-0.74	-0.53	0.21	0.74	0.53
Truthseeking	0.13	-0.22	-0.35	-0.13	0.22	0.35
Open-mindedness	-0.19	-0.41	-0.22	0.19	0.41	0.22
Inquisitiveness	-0.04	-0.52	-0.47	0.04	0.52	0.47
Analytical	-0.04	-0.31	-0.28	0.04	0.31	0.28
Systematical	-0.16	-0.02	0.14	0.16	0.02	-0.14
Confidence in Reasoning	-0.11	-0.49	-0.37	0.11	0.49	0.37
Maturity of Judgment	-0.04	-0.44	-0.40	0.04	0.44	0.40

For the CCTDI pre-test score, the Covid-19 Pandemic group had a mean score that was almost the same as the post-Covid-19 Pandemic group, namely 276.70 and 281.05. The difference is not significant.
The overall subscale and total results are displayed in Table 2

Table 2. CCTDI Pre Test Based on Online and Offline Learning Models

Scale	F	Sig.	T	Sig.	Difference
Total Disposition_Pre	1.477	0.226	-2.936	0.004	Significant
Truthseeking	6.029	0.015	1.731	0.085	No Significant
Open-mindedness	16.296	0.000	-2.577	0.011	Significant
Inquisitiveness	21.248	0.000	-0.603	0.547	No Significant
Analytical	9.481	0.002	-0.474	0.636	No Significant
Systematical	10.008	0.002	-2.210	0.028	Significant
Confidence in Reasoning	2.710	0.101	-1.560	0.120	No Significant

Maturity of Judgment	0.037	0.847	-0.509	0.611	No Significant

The results of the independent sample t test show that the CCTDI pre test score with Equal variance assumed is -2.936 with a probability of 0.004. Because the probability for the two-sided test (0.004/2 = 0.002) < 0.025, then H0 is rejected, or the two mean CCTDI pre-test scores for the groups during the Covid-19 Pandemic and post-Covid-19 Pandemic are different. There is a difference in the total score in the CCTDI pre-test score for the group during the Covid-19 Pandemic and the post-Covid-19 Pandemic group.

After testing the pre test score, the following is testing the CCTDI post test score. For the total CCTDI post test score, the Covid-19 Pandemic group had a mean score of 279.68 while the post-Covid-19 Pandemic group had 309.08. The results of the independent sample t test show that the difference in post test scores between groups shows that for CCTDI with Equal variance assumed it is -14.766. with probability 0.000. Because the probability for a two-sided test (0.000/2 = 0.000) < 0.025, then H0 is rejected, or the two mean CCTDI post test scores for the Covid-19 Pandemic and post-Covid-19 Pandemic groups are completely different, in the sense of the Covid-19 Pandemic group. -19 had a CCTDI post test score that was different from the post Covid-19 Pandemic group. This can be interpreted as that there is a difference in online learning (during the Covid-19 Pandemic) and offline (after the Covid-19 Pandemic).

The results of the independent samples t test for the overall CCTDI post test are shown in Table 3.

Table 3. CCTDI Post Test Based on Online and Offline Learning Models

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_Post	8.919	0.003	-14.766	0.000	Significant
Truthseeking	1.775	0.184	-3.118	0.002	Significant
Open-mindedness	4.482	0.036	-6.054	0.000	Significant
Inquisitiveness	62.803	0.000	-8.153	0.000	Significant
Analytical	3.549	0.061	-4.460	0.000	Significant
Systematical	1.187	0.277	-0.254	0.800	No Significant
Confidence in Reasoning	1.818	0.179	-7.533	0.000	Significant
Maturity of Judgment	0.730	0.394	-6.635	0.000	Significant

There is something interesting about the appearance of the table above, in total post test there is a statistically significant difference between the post-Covid-19 Pandemic group and the group during the Covid-19 Pandemic. However, the significant changes are still in the same category on almost every subscale. There was a change in category from pre-test to post-test in the Covid-19 Pandemic period group, from weak to strong category with only a change of 2.98 points. This means that the score is already in a high position so that with just a few points the category has increased.

Thus, it can be concluded that the offline learning model has a positive and significant effect in improving the critical thinking disposition of elementary school

teacher education. With a significance level of ρ<0.05, the critical thinking disposition score of the post-Covid-19 pandemic (offline learning) group was significantly higher than the online group. Subscales in order from highest to lowest total score, Inquisitiveness, Maturity of Judgment, Confidence in Reasoning, Truthseeking, Analytical, Open-mindedness, except Systematic which was actually higher in the group during the Covid-19 Pandemic (online learning). This can happen because in offline learning interactions are more controlled and relationships can be more intensive. Meanwhile, a systematic scale can occur online because the material provided is more focused on systematic material and the material is better prepared for broadcast.

There was no change in category, but statistically the results increased significantly. The total pre-test CCTDI score for the post-Covid-19 Pandemic group received relatively the same score as the group during the Covid-19 Pandemic. CCTDI post-test scores, however, there were significant differences in changes so that the post-Covid-19 Pandemic group got a higher score than the group during the Covid-19 Pandemic. The six subscale scores and the total score in the post-Covid-19 Pandemic group were higher and statistically significantly different (ρ <.05) compared to the group during the Covid-19 Pandemic, except for Systematic which decreased.

Table 4. Independent Sample t Test Results of CCTDI Pre Test Based on Online and Offline Learning Models

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_Pre	1.477	0.226	-2.936	0.004	Significant
Truthseeking	6.029	0.015	1.731	0.085	No Significant
Open-mindedness	16.296	0.000	-2.577	0.011	Significant
Inquisitiveness	21.248	0.000	-0.603	0.547	No Significant
Analytical	9.481	0.002	-0.474	0.636	No Significant
Systematical	10.008	0.002	-2.210	0.028	Significant
Confidence in Reasoning	2.710	0.101	-1.560	0.120	No Significant
Maturity of Judgment	0.037	0.847	-0.509	0.611	No Significant

Biber, Tuna, and Incikabi (2013) examined the critical thinking disposition of prospective mathematics teachers in Turkey based on variables of level in college, type of college, gender, and reading practices. The case study research involved a total of 99 samples of prospective mathematics teachers. The results of this research are that prospective mathematics teachers generally have a low level of critical thinking disposition, university variables significantly influence prospective teachers' critical thinking dispositions, and that reading practice is weakly correlated with critical thinking dispositions.

Table 5. Differences in CCTDI Scores Between Women in Raw Mean Score, Score Category, and Raw Mean Score

FEMALE

RAW SCORES	THE COVID-19 PANDEMIC PERIOD			POST COVID-19 PANDEMIC		
Category	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	276.21	280.15	3.94	281.3	308.53	27.23
Truthseeking	33.54	35.50	1.96	32.52	38.37	5.85
	Ambiguous	Ambiguous	Nothing	Ambiguous	Ambiguous	Nothing
Open-mindedness	34.31	35.28	0.97	35.22	38.75	3.53
	Ambiguous	Ambiguous	Nothing	Ambiguous	Ambiguous	Nothing
Inquisitiveness	39.84	38.48	-1.36	40.38	49.35	8.97
	Ambiguous	Ambiguous	Nothing	Positive	Positive	Nothing
Analytical	46.16	46.58	0.42	46.44	49.10	2.66
	Positive	Positive	Nothing	Positive	Positive	Nothing
Systematical	41	41.48	0.48	42.9	41.65	-1.25
	Positive	Positive	Nothing	Positive	Positive	Nothing
Confidence in Reasoning	42.56	42.83	0.27	43.28	48.27	4.99
	Positive	Positive	Nothing	Positive	Positive	Nothing
Maturity of Judgment	38.78	39.54	0.76	39.57	43.66	4.09
	Positive	Positive	Nothing	Positive	Positive	Nothing
Raw Mean Score	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	-0.21	-0.74	-0.53	0.21	0.74	0.53
Truthseeking	0.13	-0.22	-0.35	-0.13	0.22	0.35
Open-mindedness	-0.19	-0.41	-0.22	0.19	0.41	0.22
Inquisitiveness	-0.04	-0.52	-0.47	0.04	0.52	0.47
Analytical	-0.04	-0.31	-0.28	0.04	0.31	0.28
Systematical	-0.16	-0.02	0.14	0.16	0.02	-0.14
Confidence in Reasoning	-0.11	-0.49	-0.37	0.11	0.49	0.37
Maturity of Judgment	-0.04	-0.44	-0.40	0.04	0.44	0.40

Table 6. Independent Sample t Test Results for CCTDI Pre Test Based on Women's Group

Scale	F	Sig.	T	Sig.	Difference
Total Disposition_pre	0.973	0.326	-3.016	0.003	Significant
Truthseeking	7.763	0.006	1.176	0.242	No Significant
Open-mindedness	9.386	0.003	-3.067	0.003	Significant
Inquisitiveness	21.108	0.000	-0.333	0.740	No Significant
Analytical	7.761	0.006	-0.524	0.601	No Significant
Systematical	11.382	0.001	-2.396	0.018	Significant
Confidence in Reasoning	2.575	0.111	-0.809	0.420	No Significant
Maturity of Judgment	0.249	0.619	-1.138	0.257	No Significant

Table 7. Independent Sample t Test Results Post CCTDI Test Based on Women's Group

Scale	F	Sig.	T	Sig.	Difference
Total Disposition_Post	5.030	0.026	-12.929	0.000	Significant
Truthseeking	0.396	0.530	-2.880	0.005	Significant
Open-mindedness	1.793	0.183	-5.381	0.000	Significant
Inquisitiveness	39.000	0.000	-6.921	0.000	Significant
Analytical	2.683	0.104	-3.695	0.000	Significant
Systematical	2.304	0.131	-0.323	0.747	No Significant
Confidence in Reasoning	1.985	0.161	-6.338	0.000	Significant
Maturity of Judgment	1.230	0.269	-6.177	0.000	Significant

The pre-test to post-test change in CCTDI scores was greater for women in the post-Covid-19 Pandemic group on all subscales and total scores, except for Systematic where the difference was not significant. In women, this change from pre-test to post-test did not result in categorical movement, except for the total score which changed from Ambiguous to positive.

The independent sample t-test shows that there is a statistically significant difference between the group of women after the Covid-19 Pandemic compared to the group during the Covid-19 Pandemic except for the Systematic subscale at $\acute{\rho} < .05$.

Table 8. Differences in Pre-Post CCTDI Scores Between Men's Groups in Raw Mean Score, Category Score and Raw Mean Score

MALE						
RAW SCORES	THE COVID-19 PANDEMIC PERIOD			POST COVID-19 PANDEMIC		
Category	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	278.08	278.38	0.30	279.54	312.38	32.84
	Positive	Positive		Positive	Positive	
Truthseeking	34.67 Ambiguous	36.79 Ambiguous	2.12	32.54 Ambiguous	40.46 Positive	7.92
Open-mindedness	34.17	34.71	0.54	32.77	38.62	5.85
	Ambiguous	Ambiguous		Ambiguous	Ambiguous	
Inquisitiveness	37.92	37.42	-0.50	39.23	49.77	10.54
	Ambiguous	Ambiguous		Ambiguous	Positive Kuat	
Analytical	46.83	46.13	-0.70	47.31	49.08	1.77
	Positive	Positive		Positive	Positive	
Systematical	42.13	41.71	-0.42	42.31	41.62	-0.69
	Positive	Positive		Positive	Positive	
Confidence in Reasoning	41.83	41.67	-0.16	45.92	48.92	3
	Positive	Positive		Positive	Positive	
Maturity of Judgment	40.54	39.96	-0.58	39.46	43.92	4.46
	Positive	Positive		Ambiguous	Positive	
RAW SCORE						
Total Disposition	-0.08	-0.82	-0.74	0.08	0.82	0.74
Truthseeking	0.20	-0.29	-0.49	-0.20	0.29	0.49

MALE						
RAW SCORES	THE COVID-19 PANDEMIC PERIOD			POST COVID-19 PANDEMIC		
Category	Pre	Post	Difference	Pre	Post	Difference
Open-mindedness	0.22	-0.39	-0.61	-0.22	0.39	0.61
Inquisitiveness	-0.06	-0.52	-0.47	0.06	0.52	0.47
Analytical	-0.08	-0.37	-0.29	0.08	0.37	0.29
Systematical	-0.02	0.01	0.03	0.02	-0.01	-0.03
Confidence in Reasoning	-0.31	-0.55	-0.24	0.31	0.55	0.24
Maturity of Judgment	0.13	-0.40	-0.53	-0.13	0.40	0.53

Table 9. Independent Sample t Test Results Pre Test CCTDI Based on Male Group

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_pre	0.927	0.342	-0.441	0.662	No Significant
Truthseeking	0.074	0.787	1.174	0.248	No Significant
Open-mindedness	4.473	0.042	1.092	0.291	No Significant
Inquisitiveness	0.675	0.417	-0.339	0.737	No Significant
Analytical	2.002	0.166	-0.474	0.639	No Significant
Systematical	0.023	0.881	-0.114	0.910	No Significant
Confidence in Reasoning	0.546	0.465	-1.890	0.067	Significant
Maturity of Judgment	0.611	0.440	0.762	0.451	No Significant

Table 10. Independent Sample t Test Results Post CCTDI Test Based on Male Group

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_Post	9.614	0.004	-6.430	0.000	Significant
Truthseeking	1.168	0.287	-1.755	0.088	No Significant
Open-mindedness	4.425	0.043	-2.022	0.061	No Significant

Inquisitiveness	21.54	0.000	-4.231	0.000	Significant
Analytical	1.219	0.277	-2.274	0.029	Significant
Systematical	0.000	0.986	0.073	0.942	No Significant
Confidence in Reasoning	0.516	0.477	-3.725	0.001	Significant
Maturity of Judgment	0.020	0.889	-2.497	0.017	Significant

Changes in CCTDI pre-test to post-test scores in the post-Covid-19 Pandemic group of men were more in Search of Truth and Maturity of Judgment from Ambiguous to positive, and Inquisitiveness from Ambiguous to strong positive. The independent sample t-test shows that there is a statistically significant difference between the group of men after the Covid-19 Pandemic (offline) compared to the group during the Covid-19 Pandemic (offline) in the total score, Inquisitiveness, Analyticality, Confidence in Reasoning, Maturity of Judgment except for the Truthseeking subscale, Open-mindedness, and Systematiurban at the significance level $\dot{\rho} < 0.05$.

Table 11. CCTDI Anova Test Results Between Learning Groups and Gender

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	39958,467 [a]	3	13,319,489	72,769	0,000
Intercept	9,530,921,685	1	9,530,921,685	52,070,628	0,000
Group	26,673,064	1	26,673,064	145,724	0,000
Gender	29,668	1	29,668	0,162	0,688
Group * Gender	216,787	1	216,787	1,184	0,278
Error	32,946,902	180	183,038		
Total	16,018,316,000	184			
Corrected Total	72,905,370	183			

a. R Squared = ,548 (Adjusted R Squared = ,541)

It can be seen that the calculated F is 1.184 with a probability of 0.278. Because the probability .> 0.05, then Ho is accepted. There was no interaction between learning group and gender group. It can be seen that 54.8% of the sum of squares can be explained by learning which is the result of the output above. There are 45.2% (100% - 54.8%) that cannot be explained by the model.

The results of the two-way ANOVA did not show any evidence that the gender variable had an effect on critical thinking disposition. As times become more advanced and modern, there are no longer any differences between men and women. The emancipation of women throughout the world has changed the habits of thought that

are characteristic of typical women, namely attention to context, the relationship between self and object, and attention to personal voice, or women no longer follow the pattern of "receiving knowledge", "interpersonal pattern," Baxter-Magolda Model. The results of the Post Hoc Test analysis with Bonferroni and Tukey for cross-testing between gender and learning mode turned out to be a significant difference.

Table 12. Difference in CCTDI Pre-Post Test Scores Between Rural Groups in Raw Mean Score, Category Score, and Raw Mean Score

RURAL						
RAW SCORES	THE COVID-19 PANDEMIC PERIOD			POST COVID-19 PANDEMIC		
Category	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	277.00	278.98	1.98	281.70	309.35	27.65
Truthseeking	Ambiguous	Ambiguous		Positive	Positive	
Open-mindedness	34.09	36.39	2.30	32.67	38.33	5.67
	Ambiguous	Ambiguous		Ambiguous	Ambiguous	
Inquisitiveness	34.41	35.61	1.20	36.53	39.42	2.88
	Ambiguous	Ambiguous		Ambiguous	Ambiguous	
Analytical	39.02	37.70	-1.31	40.10	49.35	9.25
	Ambiguous	Ambiguous		Positive	Positive	
Systematical	46.39	46.52	0.13	46.53	49.27	2.73
	Positive	Positive		Positive	Positive	
Confidence in Reasoning	41.28	41.02	-0.26	42.48	41.40	-1.08
	Positive	Positive		Positive	Positive	
Maturity of Judgment	42.85	42.35	-0.50	43.93	48.28	4.35
	Positive	Positive		Positive	Positive	
	38.96	39.39	0.43	39.45	43.28	3.83
	Ambiguous	Ambiguous		Ambiguous	Positive	
Raw Mean Score						
Total Disposition	-0.22	-0.75	-0.53	0.22	0.75	0.53
Truthseeking	0.13	-0.16	-0.29	-0.13	0.16	0.29
Open-mindedness	-0.27	-0.44	-0.17	0.27	0.44	0.17

Inquisitiveness	-0.05	-0.53	-0.48	0.05	0.53	0.48
Analytical	-0.02	-0.33	-0.31	0.02	0.33	0.31
Systematical	-0.13	pemba	0.09	0.13	0.04	-0.09
Confidence in Reasoning	-0.11	-0.54	-0.43	0.11	0.54	0.43
Maturity of Judgment	-0.06	-0.42	-0.36	0.06	0.42	0.36

Rural students started with a score in the Ambiguous category on the pre-test, which was maintained on the post-test, while urban students started with a score in the positive category on the pre-test, which was maintained on the post-test. Rural students in the group during the Covid-19 Pandemic did not show changes in categories on all subscales, whereas in the post-Covid-19 Pandemic group only changes on the Maturity of Judgment subscale from Ambiguous to positive.

Table 13. Independent Sample t Test Results Pre Test CCTDI Rural Group

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_Pre	0.486	0.487	-2.403	0.018	Significant
Truthseeking	1.597	0.209	1.425	0.157	No Significant
Open-mindedness	4.912	0.029	-3.072	0.003	Significant
Inquisitiveness	15.208	0.000	-0.573	0.568	No Significant
Analytical	7.724	0.006	-0.233	0.816	No Significant
Systematical	7.842	0.006	-1.355	0.179	No Significant
Confidence in Reasoning	0.558	0.457	-1.156	0.250	No Significant
Maturity of Judgment	0.098	0.755	-0.650	0.517	No Significant

Table 14. Independent Sample t Test Results Post Test CCTDI Rural Group

Scale	F	Sig.	t	Sig.	Difference
Total Disposition	6.926	.010	-12.268	.000	Significant
Truthseeking	2.229	.138	-1.696	.093	No Significant
Open-mindedness	.600	.440	-5.214	.000	Significant
Inquisitiveness	54.297	.000	-6.472	.000	Significant
Analytical	.811	.370	-3.728	.000	Significant
Systematical	.066	.798	-.438	.662	No Significant

Confidence in Reasoning	.590	.444	-6.733	.000	Significant
Maturity of Judgment	.599	.441	-4.864	.000	Significant

Table 15. Difference in CCTDI Pre-Post Test Scores Between Urban Students in Raw Mean Score, Category Score and Raw Mean Score

URBAN						
RAW SCORES	THE COVID-19 PANDEMIC PERIOD			POST COVID-19 PANDEMIC		
Category	Pre	Post	Difference	Pre	Post	Difference
Total Disposition	276.26	280.68	4.42	279.84	308.56	28.72
Truthseeking	33.47 Ambiguous	34.24 Ambiguous	0.76	32.25 Ambiguous	38.44 Ambiguous	6.19
	34.08 Ambiguous	34.82 Ambiguous	0.74	34.22 Ambiguous	37.50 Ambiguous	3.28
Open-mindedness	39.79	39.58	-0.21	40.44	49.34	8.91
	Ambiguous	Ambiguous		Positive	Positive	
Inquisitiveness	46.29	46.66	0.37	46.63	48.78	2.16
	Positive	Positive		Positive	Positive	
Analytical	41.32	42.13	0.82	43.44	42.13	-1.31
	Positive	Positive		Positive	Positive	
Systematical	41.68	43.50	1.82	43.13	48.25	5.13
	Positive	Positive		Positive	Positive	
Confidence in Reasoning	39.63	39.76 Ambiguous	0.13	39.75	44.38 Positive	4.63
	Ambiguous			Ambiguous		
Raw Mean Score						
Total Disposition	-0.19	-0.72	-0.53	0.19	0.72	0.53
Truthseeking	0.12	-0.32	-0.44	-0.12	0.32	0.44

Open-mindedness	-0.02	-0.34	-0.32	0.02	0.34	0.32
Inquisitiveness	-0.03	-0.49	-0.46	0.03	0.49	0.46
Analytical	-0.06	-0.28	-0.22	0.06	0.28	0.22
Systematical	-0.22	0.00	0.22	0.22	0.00	-0.22
Confidence in Reasoning	-0.11	-0.41	-0.30	0.11	0.41	0.30
Maturity of Judgment	-0.01	-0.49	-0.48	0.01	0.49	0.48

Table 16. Independent Sample t Test Results Pre Test CCTDI Urban Group

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_pre	1.955	0.167	-1.565	1.955	No Significant
Truthseeking	5.934	0.017	1.073	5.934	No Significant
Open-mindedness	14.154	0.000	-.146	14.154	No Significant
Inquisitiveness	6.555	0.013	-.276	6.555	No Significant
Analytical	1.373	0.245	-.522	1.373	No Significant
Systematical	2.230	0.140	-1.879	2.230	No Significant
Confidence in Reasoning	2.468	0.121	-.931	2.468	No Significant
Maturity of Judgment	0.300	0.586	-.109	0.300	No Significant

The results of the significance test in the pre-test showed that there were no significant differences between students in the urban group and during the Covid-19 pandemic.

Table 17. Independent Sample t Test Results Post Test CCTDI Urban Group

Scale	F	Sig.	t	Sig.	Difference
Total Disposition_post	2.280	0.136	-8.533	0.000	Significant
Truthseeking	0.442	0.508	-2.778	0.007	Significant
Open-mindedness	5.811	0.019	-2.867	0.006	Significant
Inquisitiveness	11.564	0.001	-4.918	0.000	Significant
Analytical	3.902	0.052	-2.414	0.018	Significant

Scale	F	Sig.	t	Sig.	Difference
Systematical	2.098	0.152	0.006	0.995	No Significant
Confidence in Reasoning	1.078	0.303	-3.770	0.000	Significant
Maturity of Judgment	0.082	0.776	-4.657	0.000	Significant

The results of the significance test in the post test show that there are significant differences between students from the post-Covid-19 Pandemic group and those from the Covid-19 Pandemic period who came from rurals and cities, except for the systematic sub-scale.

Table 18. CCTDI ANOVA Test Results Between Learning Model Groups and Regional Origin

Tests of Between-Subjects Effects

Dependent Variable: Skor CCTDI Post-Test					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	39814,653[a]	3	13,271,551	72,192	0,000
Intercept	14,950,682,765	1	14,950,682,765	81,325,615	0,000
Group	36,578,490	1	36,578,490	198,972	0,000
Asl_da	9,031	1	9,031	0,049	0,825
Group * Asl_da	66,859	1	66,859	0,364	0,547
Error	33,090,717	180	183,837		
Total	16,018,316,000	184			
Corrected Total	72,905,370	183			

a. R Squared = ,546 (Adjusted R Squared = ,539)

It can be seen that the calculated F of regional origin is 198.972 with a probability of 0.000. Because probability <0.05, Ho is rejected. This means that there are differences in the average CCTDI based on regional origin groups.

It can be seen that the F calculated for the interaction between learning and regional origin is 0.049 with a probability of 0.825. Because the probability is > 0.05, then Ho is accepted. Or the average CCTDI score from these areas is the same. It can be seen that the calculated F is 0.364 with a probability of 0.547. Because the probability .> 0.05, then Ho is accepted. Thus, it was concluded that there was no interaction between the learning group and groups from rural and urban areas.

The results of the two-way ANOVA conducted showed there was no evidence that the regional origin variable had an effect on increasing critical thinking disposition. The research results also show that there is no difference between students from urban and

rural areas. Ojewole and Tomson [26] examined the critical thinking disposition of undergraduate students at various levels of nursing education in Nigeria. The research findings showed that the overall critical thinking disposition was weakly positive based on an overall mean score of 284.52 and SD ± 25.98. There was no evidence that dispositions increased significantly across learning time. The subgroup mean of the 7 disposition sub-scores revealed a homogeneous group score with Truth Seeking being the lowest and Inquisitiveness being the highest. Statistically significant differences were found between participants' scores for Truth Seeking, Inquisitiveness, Analyticality, Confidence in Reasoning, and total CCTDI.

A comparison between the groups during the Covid-19 Pandemic and post-Covid-19 Pandemic proves that the post-Covid-19 Pandemic group as a whole is larger than the group during the Covid-19 Pandemic.

Both groups scored well on the CCTDI in the Pre-Test, leaving little room for improvement in the post-test; both groups were able to achieve a "positive" score. In the group during the Covid-19 Pandemic it increased from Ambiguous to positive. However, it is difficult to improve when all students participating in the research can get such strong scores on the Pre-Test. In certain subscales there are differences in post-Covid-19 Pandemic group which was significantly more positive than the difference between groups during the Covid-19 Pandemic.

Comparisons of gender and regional origin using the CCTDI were similar between groups. Due to the overall high score on the pre-test, there was little change from the pre-test to the post-test. The results of the ANOVA showed that there were no differences between gender groups and regional origins between online learning (the Covid 19 Pandemic period) and offline (post Covid 19 Pandemic). As explained in the literature review, research on whether men are better critical thinkers than women is inconclusive.

Learning in the Elementary School Teacher Education study program is cross-disciplinary with diverse points of view which of course requires a critical thinking disposition. All students have never been alone in this situation - no matter what gender they come from or where they come from. This allows students to engage in thinking activities without being too fixated on what they are thinking about.

It needs to be realized that learning in Elementary School Teacher Education does not stop at the level of critical thinking, but needs to touch on the level of internalization and real practice in real life. This is in accordance with Ki Hadjar Dewantara's life teachings, "Tringa" which includes *ngerti* (understanding), *ngrasa* (feeling) and *nglakoni* (acting), reminding all teachings, and *nglakoni* the ideals of life that we adhere to require understanding, awareness and seriousness in their implementation. Just knowing and understanding is not enough, if you don't feel, realize, and there's no meaning if you don't implement it and don't fight for it. It is likened to knowledge without deeds like a tree that does not bear fruit. Students need to be trained to "digalih" (contemplate down to the core) which has a broader and deeper meaning than just critical thinking. Menggalih comes from the Javanese word "galih" which is the hard part of the wood or the essence of the tree. Which means that deep reflection is needed which not only involves the mind, but also the secret that lies in the heart which is able to weigh the good and the bad.

4 Conclusion

The offline learning model after the Covid 19 Pandemic can further improve students' critical thinking disposition in all aspects of critical thinking disposition, namely truth seeking, Open-mindedness, analytical, systematic, Confidence in Reasoning, Inquisitiveness and Maturity of Judgment. The research results show that the total score of the group during the Covid-19 Pandemic that used online learning was in the positive category, while the post-Covid-19 Pandemic group that used offline learning was in the strong category. The same category occurs in the post test score results with no change in category in disposition. The post test total score shows that there is a statistically significant difference between the post-Covid-19 Pandemic group and the group during the Covid-19 Pandemic. There was a change in category from pre-test to post-test in the Covid-19 Pandemic period group, from weak to strong category with only a change of 2.98 points. With a significance level of $\acute{\rho}<0.05$, the critical thinking disposition score of the post-Covid-19 Pandemic group was significantly higher than the group during the Covid-19 Pandemic. The subscales are in order from highest to lowest total score and scores for Inquisitiveness , Maturity of Judgment, Confidence in Reasoning, Truthseeking, Analytical, Open-mindedness, except for Systematicism which was actually higher in the group during the Covid-19 Pandemic.

Changes in CCTDI pre-test to post-test scores in the post-Covid-19 Pandemic group of men were higher in Truthseeking and Maturity of Judgment from Ambiguous to positive, and Inquisitiveness from Ambiguous to strong positive. The independent samples t-test showed that there was a statistically significant difference between the group of men after the Covid-19 Pandemic compared to the group during the Covid-19 Pandemic in the total score and the scores for Inquisitiveness , Analyticism, Confidence in Reasoning, Maturity of Judgment except for the Truth-seeking, Open-mindedness, and Systematic subscales at the significance level $\acute{\rho} < 0.05$.

The results of the significance test in the post test show that there are significant differences between students from the post-Covid-19 Pandemic group and those from the Covid-19 Pandemic period who came from rurals and cities, except for the systematic sub-scale. Rural students started with a score in the Ambiguous category on the pre-test, which was maintained on the post-test, while urban students started with a score in the positive category on the pre-test, which was maintained on the post-test. Rural students in the group during the Covid-19 Pandemic did not show changes in categories on all subscales, whereas in the post-Covid-19 Pandemic group only changes on the Maturity of Judgment subscale from Ambiguous to positive.

This research provides theoretical benefits in the form of critical thinking disposition profiles of elementary school teacher education students and practical benefits as a reference for lecturers to identify deficiencies in critical thinking dispositions and become targets for improvement in choosing appropriate learning modes to train critical thinking dispositions, for college curriculum developers, and as reference for other researchers who study critical thinking dispositions.

5 Suggestion

Further research needs to be carried out using a wider scope and a larger sample (for example across tertiary institutions), It is necessary to develop research instruments that use essay tests to complement research that uses multiple choice. Qualitative research needs to be carried out as a complement to this quantitative research.

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